

ABSTRACT OF THE INVENTION

A bistable shape memory alloy (SMA) micro-switch includes a single continuous SMA element such as a nitinol wire that provides bi-directional motion for switching functions. Bifunctional contact arms provide a mechanical force to maintain an open state of the micro-switch in addition to conducting current through a circuit. The SMA element includes first and second segments that are alternately heated above a transition temperature to cause the SMA element to alternate between first and second conformations. A cursor attached to the SMA element moves from a first position to a second position as the SMA element moves from its first to its second conformation. To close the SMA micro-switch, the contact arm is moved from an open position to a closed position through sliding contact with the cursor as the cursor moves from its second position to its first position. Friction generated by contact between the cursor and the contact arm maintains the cursor in its first position and the SMA micro-switch in its closed state.